# **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

# **Listing of Claims:**

1. (Original) A compound of the following formula:

$$R^{1} \xrightarrow[R^{1'}]{O} \xrightarrow[A]{A} \xrightarrow[H]{O} \xrightarrow[B]{N} S(O)_{p}R$$

wherein:

A is a natural or unnatural amino acid of Formula IIa-i:

B is a hydrogen atom, a deuterium atom, alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, substituted naphthyl, 2-benzoxazolyl,

substituted 2-oxazolyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl),  $(CH_2)_n$ (1 or 2-naphthyl),  $(CH_2)_n$ (substituted 1 or 2-naphthyl),  $(CH_2)_n$ (heteroaryl),  $(CH_2)_n$ (substituted heteroaryl), halomethyl,  $CO_2R^{12}$ ,  $CONR^{13}R^{14}$ ,  $CH_2ZR^{15}$ ,  $CH_2OCO(aryl)$ ,  $CH_2OCO(heteroaryl)$ , or  $CH_2OPO(R^{16})R^{17}$ , where Z is an oxygen or a sulfur atom, or B is a group of the Formula IIIa-c:

R and R<sup>1</sup> are the same or different and independently alkyl, cycloalkyl, (cycloalkyl)alkyl, phenyl, substituted phenyl, phenylalkyl,

substituted phenylalkyl, naphthyl, substituted naphthyl, (1 or 2 naphthyl)alkyl, substituted (1 or 2 naphthyl)alkyl, heterocycle, substituted heterocycle, (heterocycle)alkyl, substituted (heterocycle)alkyl, R<sup>1a</sup>(R<sup>1b</sup>)N

or R<sup>1c</sup>O;

R<sup>1'</sup> is hydrogen, alkyl, phenyl, substituted phenyl, naphthyl, substituted naphthyl, heterocycle or substituted heterocycle;

or R<sup>1</sup> and R<sup>1</sup> taken together with the nitrogen atom to which they are attached form a heterocycle or substituted heterocycle;

and wherein:

R<sup>1a</sup> and R<sup>1b</sup> are the same or different and, at each occurrence, independently hydrogen, alkyl, cycloalkyl, (cycloalkyl)alkyl, phenyl, substituted phenyl, phenylalkyl, substituted phenylalkyl, naphthyl, substituted naphthyl, (1 or 2 naphthyl)alkyl, substituted (1 or 2

naphthyl)alkyl, heteroaryl, substituted heteroaryl, (heteroaryl)alkyl, or substituted (heteroaryl)alkyl, with the proviso that R<sup>1a</sup> and R<sup>1b</sup> cannot both be hydrogen;

R<sup>1c</sup> is, at each occurrence, alkyl, cycloalkyl, (cycloalkyl)alkyl, phenyl, substituted phenyl, phenylalkyl, substituted phenylalkyl, naphthyl, substituted naphthyl, (1 or 2 naphthyl)alkyl, substituted (1 or 2 naphthyl)alkyl, heteroaryl, substituted heteroaryl, (heteroaryl)alkyl;

 $R^3$  is lower alkyl, cycloalkyl, phenyl, substituted phenyl,  $(CH_2)_nNH_2$ ,  $(CH_2)_nNHCOR^9$ ,  $(CH_2)_nN(C=NH)NH_2$ ,  $(CH_2)_mCO_2R^2$ ,  $(CH_2)_mOR^{10}$ ,  $(CH_2)_mSR^{11}$ ,  $(CH_2)_ncycloalkyl$ ,  $(CH_2)_nphenyl$ ,  $(CH_2)_n(substituted phenyl)$ ,  $(CH_2)_n(1$  or 2-naphthyl) or  $(CH_2)_n(heteroaryl)$ , wherein heteroaryl includes pyridyl, thienyl, furyl, thiazolyl, imidazolyl, pyrazolyl, isoxazolyl, pyrazinyl, pyrimidyl, triazinyl, tetrazolyl, and indolyl;

 $R^{3a}$  is hydrogen or methyl, or  $R^3$  and  $R^{3a}$  taken together are -(CH<sub>2</sub>)<sub>d</sub>- where d is an interger from 2 to 6;

R<sup>4</sup> is phenyl, substituted phenyl, (CH<sub>2</sub>)<sub>m</sub>phenyl, (CH<sub>2</sub>)<sub>m</sub>(substituted phenyl), cycloalkyl, or benzofused cycloalkyl;

 $R^5$  is hydrogen, lower alkyl, cycloalkyl, phenyl, substituted phenyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl), or  $(CH_2)_n$ (1 or 2-naphthyl);

 $R^6$  is hydrogen, fluorine, oxo, lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl),  $(CH_2)_n$ (1 or 2-naphthyl),  $OR^{10}$ ,  $SR^{11}$  or  $NHCOR^9$ ;

 $R^7$  is hydrogen, oxo (*i.e.*, = O), lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, (CH<sub>2</sub>)<sub>n</sub>cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>phenyl, (CH<sub>2</sub>)<sub>n</sub>(substituted phenyl), or (CH<sub>2</sub>)<sub>n</sub>(1 or 2-naphthyl);

R<sup>8</sup> is lower alkyl, cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>phenyl, (CH<sub>2</sub>)<sub>n</sub>(substituted phenyl), (CH<sub>2</sub>)<sub>n</sub>(1 or 2-naphthyl), or COR<sup>9</sup>;

 $R^9$  is hydrogen, lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl),  $(CH_2)_n$ (1 or 2-naphthyl),  $OR^{12}$ , or  $NR^{13}R^{14}$ ;

 $R^{10}$  is hydrogen, lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl), or  $(CH_2)_n$ (1 or 2-naphthyl);

 $R^{11}$  is lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl), or  $(CH_2)_n$ (1 or 2-naphthyl);

R<sup>12</sup> is lower alkyl, cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>cycloalkyl, (CH<sub>2</sub>)<sub>n</sub>phenyl, (CH<sub>2</sub>)<sub>n</sub>(substituted phenyl), or (CH<sub>2</sub>)<sub>n</sub>(1 or 2-naphthyl);

 $R^{13}$  is hydrogen, lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, substituted naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl), or  $(CH_2)_n$ (1 or 2-naphthyl);

R<sup>14</sup> is hydrogen or lower alkyl;

or R<sup>13</sup> and R<sup>14</sup> taken together form a five to seven membered carbocyclic or heterocyclic ring, such as morpholine, or N-substituted piperazine;

 $R^{15}$  is phenyl, substituted phenyl, naphthyl, substituted naphthyl, heteroaryl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl),  $(CH_2)_n$ (1 or 2-naphthyl), or  $(CH_2)_n$ (heteroaryl);

R<sup>16</sup> and R<sup>17</sup> are independently lower alkyl, cycloalkyl, phenyl, substituted phenyl, naphthyl, phenylalkyl, substituted phenylalkyl, or (cycloalkyl)alkyl;

 $R^{18}$  and  $R^{19}$  are independently hydrogen, alkyl, phenyl, substituted phenyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl), or  $R^{18}$  and  $R^{19}$  taken together are -(CH=CH)<sub>2</sub>-;

 $R^{20}$  is hydrogen, alkyl, phenyl, substituted phenyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl);

R<sup>21</sup>, R<sup>22</sup> and R<sup>23</sup> are independently hydrogen, or alkyl;

X is  $CH_2$ ,  $(CH_2)_2$ ,  $(CH_2)_3$ , or S;

Y<sup>1</sup> is O or NR<sup>23</sup>;

 $Y^2$  is  $CH_2$ , O, or  $NR^{23}$ ;

a is 0 or 1 and b is 1 or 2, provided that when a is 1 then b is 1;

c is 1 or 2, provided that when c is 1 then a is 0 and b is 1;

m is 1 or 2; and

n is 1, 2, 3 or 4;

or a pharmaceutically acceptable salt thereof.

## 2. (Original) The compound of claim 1 wherein A is

$$\left\langle \begin{array}{c} R^3 \\ R^{3a} \\ \end{array} \right\rangle$$
IIa

#### 3. (Original) The compound of claim 2 wherein

 $R^3$  is lower alkyl, cycloalkyl, phenyl, substituted phenyl,  $(CH_2)_nNH_2$ ,  $(CH_2)_mOR^{10}$ ,  $(CH_2)_mSR^{11}$ ,  $(CH_2)_ncycloalkyl$ ,  $(CH_2)_nphenyl$ ,  $(CH_2)_n(substituted phenyl)$ , or  $(CH_2)_n(1 \text{ or } 2\text{-naphthyl})$ ; and

 $R^{3a}$  is hydrogen.

### 4. (Original) The compound of claim 1 wherein A is

IIb

- 5. (Original) The compound of claim 4 wherein R<sup>4</sup> is phenyl, substituted phenyl, (CH<sub>2</sub>)<sub>m</sub>phenyl, (CH<sub>2</sub>)<sub>m</sub>(substituted phenyl), cycloalkyl, or 2-indanyl.
  - 6. (Original) The compound of claim 1 wherein A is

- 7. (Original) The compound of claim 6 wherein  $R^6$  is hydrogen, fluorine, cycloalkyl, phenyl, substituted phenyl, naphthyl,  $(CH_2)_n$ cycloalkyl,  $(CH_2)_n$ phenyl,  $(CH_2)_n$ (substituted phenyl),  $(CH_2)_n$ (1 or 2-naphthyl),  $(CH_2)_n$ 0 or  $(CH_2)_n$ 1.
  - 8. (Original) The compound of claim 1 wherein A is

9. (Original) The compound of claim 8 wherein R<sup>7</sup> is hydrogen, oxo, cycloalkyl, phenyl, substituted phenyl, or naphthyl; and X is CH<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>3</sub>, or S.

### 10. (Original) The compound of claim 1 wherein A is

$$(CH_2)_a$$
 $(CH_2)_b$ 
 $O$ 
IIh

- 11. (Original) The compound of claim 10 wherein a is 0.
- 12. (Original) The compound of claim 1 wherein B is hydrogen, 2-benzoxazolyl, substituted 2-oxazolyl,  $CH_2ZR^{15}$ ,  $CH_2OCO(aryl)$ , or  $CH_2OPO(R^{16})R^{17}$ , and wherein Z is an oxygen or a sulfur atom.
  - 13. (Original) The compound of claim 1 wherein B is

$$-CH_2$$
  $-CH_2$   $-CH_$ 

- 14. (Original) The compound of claim 13 wherein  $R^{18}$  and  $R^{19}$  are independently hydrogen, alkyl, or phenyl, or wherein  $R^{18}$  and  $R^{19}$  taken together are -(CH=CH)<sub>2</sub>-.
- 15. (Original) The compound of claim 1 wherein R<sup>1</sup> is phenyl, substituted phenyl, phenylalkyl, substituted phenylalkyl, naphthyl, substituted naphthyl, (1 or 2 naphthyl)alkyl, heteroaryl, or (heteroaryl)alkyl.

- 16. (Original) The compound of claim 3 wherein R<sup>3</sup> is methyl, isopropyl, isobutyl, cyclohexylmethyl, t-butyl, cyclohexyl or phenyl.
- 17. (Original) The compound of claim 16 wherein B is  $CH_2O(2,3,5,6-$ tetrafluorophenyl).
- 18. (Original) The compound of claim 1 wherein R<sup>1</sup> is 1-naphthyl and A is valine.
- 19. (Original) The compound of claim 1 wherein  $R^1$  is 1-naphthyl and B is  $CH_2O(2,3,5,6\text{-tetrafluorophenyl})$ .
  - 20. (Original) The compound of claim 1 wherein R<sup>1</sup> is hydrogen.
  - 21. (Original) The compound of claim 1 wherein R<sup>1</sup> is lower alkyl.
  - 22. (Original) The compound of claim 1 wherein R is lower alkyl.
  - 23. (Original) The compound of claim 1 wherein R is methyl.
  - 24. (Original) The compound of claim 1 wherein q is 1.
  - 25. (Original) The compound of claim 1 wherein p is 2.
  - 26-36. (Cancelled)